

REMARKS

STATUS OF CLAIMS

Claims 1, 3-7, 11-14, 18 and 22-26 were pending and stand rejected.

Claims 3-5, 11-14 and 22-26 are indicated to be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. §112, first and second paragraphs, set forth in the Office Action and to include all of the limitations of the base claim and any intervening claims.

By this Amendment, claims 3, 5, 11-12 and 22 are amended and claims 1, 6-7 and 18 are cancelled without prejudice or disclaimer. Therefore, claims 3-5, 11-14, 22-26 are now presented for consideration.

No new matter is presented in the foregoing specification and claim amendments since the specification and claim amendments are supported from other parts of the application, and accordingly, approval and entry of same are submitted to be proper and are respectfully requested.

OBJECTION TO THE SPECIFICATION

In the Office Action at page 2, item 2, the disclosure is objected to because:

1) the specification does not provide adequate support as to how a collision of the piston with the valve is determined. The Examiner states that he "cannot ascertain how step S40 is carried out;"

2) the specification does not provide adequate support as to what takes place in the event that a collision is detected, particularly what happens to the amplitude control of the piston at step S41; and

3) the Examiner instructs Applicant to properly distinguish every occurrence of the word "amplitude" (or similar).

With respect to point 1 of the Examiner's objection, after signal detection at S30, the control unit 330 determines whether the collision of the piston with the valve occurred in accordance with the amplitude of the signal detected by the collision detection unit 200 at S40. That is, at S40, the control unit 330 compares the amplitude of the detected signal with a preset value in order to determine whether a collision of the piston with a valve occurred.

With respect to point 2 of the Examiner's objection, a summary of the flowchart of the linear compressor controlling method of the invention shown in FIG. 4 is provided in the now amended specification (see last portion of the paragraph starting on page 10, line 14) to more particularly clarify the operations of the linear compressor.

In particular, if two conditions occur, that is, it is determined that the collision has occurred at S40 after presetting a maximum amplitude of the piston of the linear compressor 100 at S10 based on the preset maximum amplitude data (i.e., the first reference value) and it is determined that the linear compressor 100 should not be stopped in response to the external signal at S50, then the control unit 330 controls the operation of the linear compressor 100 through the compressor driving unit 350 based on the reset maximum amplitude data (i.e., the second reference value) at S20.

Further, the preset maximum amplitude data (i.e., the first reference value) and the set maximum amplitude data (i.e., the second reference value) are reference values and are stored in the first and second storage units 341 and 342, respectively. The preset maximum amplitude data and the set maximum amplitude data correspond to a preset maximum amplitude of the piston and a set amplitude of the piston, respectively, such that, the piston for example, will be driven based on the preset maximum amplitude data and will thereby achieve a maximum preset amplitude. However, because the loading on the piston can change the dead center position of the piston, further collisions can be prevented by driving the piston based on a reset maximum amplitude data (i.e. a second reference value).

With respect to point 3 of the Examiner's objection, it is submitted that the specification as amended overcomes this objection because "amplitude data," is defined as a reference value for comparison to the amplitude of the piston (i.e., a measured amplitude of the piston). Further, "preset" or "presetting" refers to operation in accordance with the first reference value and "set" or "setting" refers to operation in accordance with the second reference value.

Reconsideration of the objection is respectfully requested.

REJECTION UNDER 35 U.S.C. §112, FIRST PARAGRAPH

In the Office Action, at page 3, item 4, claims 1, 3-7, 11-14, 18 and 22-26 are rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement.

In particular, the Examiner refers back to the specification objections for details thereof.

Applicant submits that the specification provides an enabling disclosure.

In particular, the operation of the linear compressor, according to the invention, for example, includes if it is determined that the collision has occurred at S40 after presetting a maximum amplitude of the piston of the linear compressor 100 at S10 based on the preset maximum amplitude data (i.e., the first reference value) and if it is determined that the linear compressor 100 should not be stopped in response to the external signal at S50, then the control unit 330 controls the operation of the linear compressor 100 through the compressor driving unit 350 based on the reset maximum amplitude data (i.e., the second reference value) at S20. Thus, it is submitted that the Examiner concern related to “amplitude control” is overcome.

Further the Examiner is concerned with adequate support in the specification regarding the determination of the collision. The specification enables the determination of the collision by disclosing output signals from the peak detection unit 260, the amplitude calculation unit 310 and the displacement calculation unit 320. More particularly, after signal detection at S30, the control unit 330 determines whether the collision of the piston with the valve occurred in accordance with the amplitude of the signal detected by the collision detection unit 200 at S40. That is, at S40, the control unit 330 compares the amplitude of the detected signal with a preset value in order to determine whether a collision of the piston with a valve occurred. Thus, it is submitted that the Examiner concern related to adequacy of support in the specification is overcome.

Reconsideration is respectfully requested.

REJECTION UNDER 35 U.S.C. §112, SECOND PARAGRAPH

In the Office Action, at page 3, item 4, claims 1, 3-7, 11-14, 18 and 22-26 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite.

Since claims 1, 6, 7 and 18 are cancelled without prejudice or disclaimer, the rejections thereof are now moot.

Moreover, it is submitted that claims 3-5, 11-14 and 22-26 now overcome this rejection.

In particular, Applicant's have adopted a consistent naming convention such that "maximum amplitude data" refers to a reference value for comparison to a "maximum amplitude" of the piston which is measured. Further, "preset" or "presetting" refers to operation in accordance with the first reference value and "set" or "setting" refers to operation in accordance with the second reference value.

Accordingly, Applicant traverses the requirement for listing a brief definition for all "amplitude phrases," since the consistent naming convention clarifies all such terms.

Reconsideration is respectfully requested.

ALLOWABLE SUBJECT MATTER

In the Office Action at page 9, item 12, claims 3-5, 11-14 and 22-26 are indicated to be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. §112, first and second paragraphs, set forth in the Office Action and to include all of the limitations of the base claim and any intervening claims.

It is submitted that claims 3-5, 11-14 and 22-26, which have been amended to overcome the rejections under 35 U.S.C. §112, first and second paragraphs, are allowable.

REJECTIONS UNDER 35 U.S.C. §102(b) and 35 U.S.C. §103(a)

In the Office Action, at page 6-8, item 8, claims 1 and 7 are rejected under 35 U.S.C. §102(b) as being anticipated by Yamamoto et al. (U.S. Patent No. 5,897,296).

In the Office Action, at pages 8 and 9, item 10, claims 6 and 18 are rejected under 35 U.S.C. §103(a) as being unpatentable over Yamamoto et al. as applied in claim 1.

Since claims 1, 6, 7 and 18 are cancelled without prejudice or disclaimer, the rejections thereof are now moot.

Reconsideration is respectfully requested.

CONCLUSION

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that affect is courteously solicited.

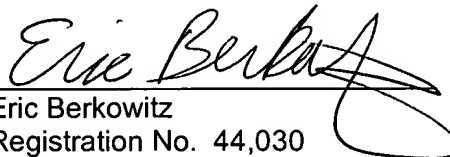
Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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Date: 5/13/04

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